UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ENVIRONMENTAL SERVICES DIVISION
60 WESTVIEW STREET, LEXINGTON, MASSACHUSETTS 02173-3185

File
10/29/93

DATE: October 27, 1993

SUBJ: Analysis of PCBs in Soils - **Transformer Disposal Area**

FROM: Matthew Hein, Shirish Vora (ESAT) and Dick Siscanaw, Chemistry Section

THRU: Dr. William J. Andrade, Chief, Chemistry Section
NJA 10/29/93

TO: Maryellen Stanton

PROJECT NUMBER: 93199

ANALYTICAL PROCEDURE:

All samples were received and logged in by the laboratory according to the chain of custody SOP (G-2, Rev 2, 2/24/92, DCN: CH-001/88).

EPA Region 1 Procedure: Polychlorinated Biphenyls in Soil Samples, Mid Level Method, PCBSOML5.SOP. The modules used for this procedure were: XL 2020 Heat Systems Sonicator, SONICAT2.MOD, Chlorinated Pesticides and PCB Screening, 8500EC1.MOD, 5880 Gas Chromatographs, 5880EC2.MOD.

Results are reported out in dry weight.

Date Samples Received by the Laboratory: 09/03/93

Date Analysis Started: 09/07/93

cc:

File: K:\CHEMSTRY\REPORTS\FINAL\93199SO.PCB

11/5/93

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QUALITY CONTROL:

1. One method blank was included in the analysis.

2. Each sample was spiked with the surrogate compounds, tetrachloroxylene and decachlorobiphenyl, at approximately 1 mg/kg. The results for the surrogate recoveries are reported out with each sample.

3. One Laboratory Control Sample (LCS) was included in the analyses. The LCS consisted of a blank spiked with Aroclor-1260 at approximately 1 mg/kg.

The spike recovery of Aroclor-1260 in the LCS could not be calculated due to cross-contamination with Aroclor-1260 from the samples.

SAMPLE ANALYZED: 78497, 78498, 78499, 78500, 79951, 79995, 79996, 87930, 87931.

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Chemist who reviewed data: Agnes VanLangenhove

Holding time meet (Y/N):
Extraction (Water - 7 days, Soil - 14 days) - *
Analytical (30 days after extraction) - Yes

* The samples were initially extracted within holding time. Significant cross-contamination of the blank with PCB-1260 was observed. The samples were therefore reextracted 25 days after the sampling date. The reextracted samples still showed cross-contamination. The reported results are for the reextracted samples.

Method modifications: None

Limitations of data:

All samples from the site contained high concentrations of Aroclor-1260 (ranging from 0.02-20% w/w). This resulted in cross-contamination of the blank and laboratory control sample (LCS) during sample processing.

Laboratory blank problems:

The blank was cross-contaminated with 0.9 ppm of Aroclor-1260.

Instrument performance problems: None

Surrogate and spike recovery problems:

Surrogate recoveries were within QC-guidance limits for the blank and LCS. Surrogates were not detected in the sample extracts due to the large dilutions necessary to measure PCB concentrations within the linear range of the instrument.

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 78497
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 223048
Percent Moisture 18

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	7E+04	
11104-28-2	Aroclor-1221	ND	7E+04	
11141-16-5	Aroclor-1232	ND	7E+04	
53469-21-9	Aroclor-1242	ND	7E+04	
12672-29-6	Aroclor-1248	ND	7E+04	
11097-69-1	Aroclor-1254	ND	7E+04	
11096-82-5	**Aroclor-1260**	**76000**	**7E+04**	
11100-14-4	Aroclor-1262	ND	7E+04	
37324-23-5	Aroclor-1268	ND	7E+04	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

Notes:

PQL = Practical quantitation level
(6E+00 = 6, 1E+01 = 10, 4E-01 = 0.4)
ND = None detected
~ = Approximate
< = Less than
> = Greater than
NA = Not applicable due to high sample dilutions or sample interferences
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration is less than ten times the common contamination.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 78498
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 23483
Percent Moisture 16

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	7E+03	
11104-28-2	Aroclor-1221	ND	7E+03	
11141-16-5	Aroclor-1232	ND	7E+03	
53469-21-9	Aroclor-1242	ND	7E+03	
12672-29-6	Aroclor-1248	ND	7E+03	
11097-69-1	Aroclor-1254	ND	7E+03	
11096-82-5	**Aroclor-1260**	**8000**	**7E+03**	
11100-14-4	Aroclor-1262	ND	7E+03	
37324-23-5	Aroclor-1268	ND	7E+03	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

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Polychlorinated Biphenyls

SAMPLE NO.: 78499
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 22953
Percent Moisture 17

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	7E+03	
11104-28-2	Aroclor-1221	ND	7E+03	
11141-16-5	Aroclor-1232	ND	7E+03	
53469-21-9	Aroclor-1242	ND	7E+03	
12672-29-6	Aroclor-1248	ND	7E+03	
11097-69-1	Aroclor-1254	ND	7E+03	
11096-82-5	**Aroclor-1260**	**12000**	**7E+03**	
11100-14-4	Aroclor-1262	ND	7E+03	
37324-23-5	Aroclor-1268	ND	7E+03	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
Polychlorinated Biphenyls

SAMPLE NO.: 78500
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 2093
Percent Moisture 5

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	6E+02	
11104-28-2	Aroclor-1221	ND	6E+02	
11141-16-5	Aroclor-1232	ND	6E+02	
53469-21-9	Aroclor-1242	ND	6E+02	
12672-29-6	Aroclor-1248	ND	6E+02	
11097-69-1	Aroclor-1254	ND	6E+02	
11096-82-5	**Aroclor-1260**	**2400**	**6E+02**	
11100-14-4	Aroclor-1262	ND	6E+02	
37324-23-5	Aroclor-1268	ND	6E+02	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

US ENVIRONMENTAL PROTECTION AGENCY
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Polychlorinated Biphenyls

SAMPLE NO.: 79951
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 19512
Percent Moisture 12

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	6E+03	
11104-28-2	Aroclor-1221	ND	6E+03	
11141-16-5	Aroclor-1232	ND	6E+03	
53469-21-9	Aroclor-1242	ND	6E+03	
12672-29-6	Aroclor-1248	ND	6E+03	
11097-69-1	Aroclor-1254	ND	6E+03	
11096-82-5	**Aroclor-1260**	**12000**	**6E+03**	
11100-14-4	Aroclor-1262	ND	6E+03	
11324-23-5	Aroclor-1268	ND	6E+03	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

US ENVIRONMENTAL PROTECTION AGENCY
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Polychlorinated Biphenyls

SAMPLE NO.: 79995
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 2133
Percent Moisture 9

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	6E+02	
11104-28-2	Aroclor-1221	ND	6E+02	
11141-16-5	Aroclor-1232	ND	6E+02	
53469-21-9	Aroclor-1242	ND	6E+02	
12672-29-6	Aroclor-1248	ND	6E+02	
11097-69-1	Aroclor-1254	ND	6E+02	
11096-82-5	**Aroclor-1260**	**2200**	**6E+02**	
11100-14-4	Aroclor-1262	ND	6E+02	
37324-23-5	Aroclor-1268	ND	6E+02	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

US ENVIRONMENTAL PROTECTION AGENCY
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Polychlorinated Biphenyls

SAMPLE NO.: 79996
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 195
Percent Moisture 5

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	6E+01	
11104-28-2	Aroclor-1221	ND	6E+01	
11141-16-5	Aroclor-1232	ND	6E+01	
53469-21-9	Aroclor-1242	ND	6E+01	
12672-29-6	Aroclor-1248	ND	6E+01	
11097-69-1	Aroclor-1254	ND	6E+01	
11096-82-5	**Aroclor-1260**	**170**	**6E+01**	
11100-14-4	Aroclor-1262	ND	6E+01	
37324-23-5	Aroclor-1268	ND	6E+01	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

FACILITY SAMPLED: TRANSFORMER DISPOSAL AREA

US ENVIRONMENTAL PROTECTION AGENCY
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Polychlorinated Biphenyls

SAMPLE NO.: 87930
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 141243
Percent Moisture 32

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	4E+04	
11104-28-2	Aroclor-1221	ND	4E+04	
11141-16-5	Aroclor-1232	ND	4E+04	
53469-21-9	Aroclor-1242	ND	4E+04	
12672-29-6	Aroclor-1248	ND	4E+04	
11097-69-1	Aroclor-1254	ND	4E+04	
11096-82-5	**Aroclor-1260**	**200000**	**4E+04**	
11100-14-4	Aroclor-1262	ND	4E+04	
37324-23-5	Aroclor-1268	ND	4E+04	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA

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Polychlorinated Biphenyls

SAMPLE NO.: 87931
SAMPLE LOCATION:
DATE OF COLLECTION:
TIME OF COLLECTION:

Matrix: Soil
Dilution Factor: 1169
Percent Moisture 19

SAMPLE RESULTS:

CAS NO.	Compound	Conc. (mg/kg)	PQL (mg/kg)	Qualifier or Comment
12674-11-2	Aroclor-1016	ND	4E+02	
11104-28-2	Aroclor-1221	ND	4E+02	
11141-16-5	Aroclor-1232	ND	4E+02	
53469-21-9	Aroclor-1242	ND	4E+02	
12672-29-6	Aroclor-1248	ND	4E+02	
11097-69-1	Aroclor-1254	ND	4E+02	
11096-82-5	**Aroclor-1260**	**~300**	**4E+02**	**L**
11100-14-4	Aroclor-1262	ND	4E+02	
37324-23-5	Aroclor-1268	ND	4E+02	

Sample Recovery for Surrogate Compound:	Observed Recoveries (%)
Decachlorobiphenyl	NA
2,4,5,6-Tetrachloro-m-xylene	NA